

REMARKS

Claims 1-23 are all the claims pending in the application. By this Amendment, Applicant amends claim 8 to cure minor informalities. In addition, Applicant adds claims 24-28.

I. Preliminary Matter

As a preliminary matter, the Examiner has not indicated any objection to the drawing figures filed on November 21, 2001. Applicant respectfully requests that the Examiner indicate acceptance of the drawings.

II. Summary of the Office Action

The Examiner withdrew the previous grounds of rejection. The Examiner, however, found new grounds for rejecting the claims. Claims 1-23 presently stand rejected under 35 U.S.C. § 103(a).

III. Prior Art Rejections

Claims 1-4,¹ 6-10, 12-16, and 18-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No, 5,140,340 to Stephenson (hereinafter “Stephenson”) in view of newly cited U.S. Patent No, 6,340,984 to Ui et al. (hereinafter “Ui”). Applicant respectfully traverses these grounds of rejection in view of the following comments.

The Examiner contends that Stephenson in view of Ui discloses each and every feature of independent claim 1. This rejection is not supportable for at least the following reasons. Claim 1 recites “a reference storage unit storing corresponding relationship between the position

¹ Since the Examiner admits that these two references do not disclose or suggest the unique features of claim 5 (see page 6 of the Office Action), Applicant respectfully submits that claims 1-4 and 5-10 are rejected.

detecting unit and the image recording unit; and an image recording position correcting unit which allows said image recording unit to correct an image recording position for said image recording material by referencing the corresponding relationship stored in the reference storage unit and based on result of detection of said position of said image recording material in said at least one side by said position detecting unit.”

The Examiner acknowledges that Stephenson does not disclose or suggest the above-quoted unique features of claim 1. The Examiner, however, contends that Ui cures the above identified deficiency of Stephenson (*see* page 3 of the Office Action). Applicant respectfully disagrees.

Ui discloses that the line sensor LS detects the leading edge of recording sheet P conveyed toward a transfer position which is an image forming position. Ui further discloses a shift calculation section SO that calculates an inclination angle and an amount of a shift of recording sheet P. Ui further discloses a control section and a reading section that perform angle correction (Fig. 2; col. 4, lines 28 to 56). In other words, Ui discloses reading an image from the storage area such that the reading is conducted in the direction which is inclined from the scanning line for reading by angle θ which is an inclination angle of recording sheet P (Figs. 5A-5D; col. 5, line 40 to col. 6, line 12).

Ui fails to disclose or suggest having a reference storage unit that stores a corresponding relationship between the image forming section and the line sensor. In other words, in Ui, similar to Stephenson and other conventional techniques, complex calculations are performed to determine the offset position i.e., which is time consuming and often requires additional computational resources. Ui fails to disclose or suggest correcting the image data by referencing the corresponding relationship between the image forming section and the line sensors. Ui fails

to disclose or suggest comparing position of the medium detected by the sensors with positions stored in the reference storage unit so as to obtain required output positions, thereby not requiring any complex calculations. Ui does not disclose or suggest a table in which the relationship between the patterns detected by the position detecting unit and the output ranges of image data to be output to the heat generating elements of the image recording unit. In short, Ui does not cure the above-identified deficiencies of Stephenson.

In summary, the combined disclosures of Stephenson and Ui do not disclose or suggest at least the above-quoted unique features of claim 1. Therefore, for all the above reasons, independent claim 1 is patentable. Claims 2-4, 6, 7, 20, and 21 are patentable at least by virtue of their dependency on claim 1.

In addition, dependent claim 20 recites: "the image recording position correcting unit corrects the image recording position by referencing sample detection patterns and corresponding ranges for output, stored in the reference storage unit." The Examiner contends that col. 5, lines 57 to 67 of Ui discloses these unique features of claim 20 (*see* page 5 of the Office Action). Applicant respectfully disagrees.

Col. 5, lines 57 to 67 of Ui recite:

Document G carrying thereon image "L" shown in FIG. 5(a) is subjected to scanning shown with s11-s1n by CCD line sensor 14b in FIG. 1, and image data are obtained. The image data are stored in image memory MR, and the state of image data stored in a storage area of memory MR can be indicated illustratively as M shown in FIG. 5(b). When reading an image from the storage area M, the reading is conducted in the direction which is inclined from the scanning line for reading by angle θ which is an inclination angle of recording sheet P, as shown in scanning lines s21-s2n.

As is visible from the above-quoted passage of Ui, there is no disclosure or suggestion of having sample detection patterns and corresponding ranges for output stored in the reference storage

unit. On the contrary, in Ui, the image data is processed and the inclination angle for image formation is calculated (col. 4, lines 47 to 67). In short, there is no sample detection patterns and corresponding ranges for output. For at least these additional exemplary reasons, claim 20 is patentable over Stephenson in view of Ui.

Dependent claim 21 recites: “the image recording position correcting unit compares the detected position of said image recording material with sample detection patterns stored in the reference storage unit, selects output ranges corresponding to a sample detection pattern that matches the detected position, and corrects image recording position for said image recording material based on the selected output ranges.”

Stephenson does not disclose or suggest the above-quoted unique features of claim 21. The Examiner contends that col. 6, lines 23 to 60 of Ui discloses the unique features of claim 21 (*see* page 5 of the Office Action). Applicant respectfully disagrees. Col. 6, lines 23 to 60 of Ui discloses a relationship between timing for conducting scanning exposure and timing for conveying a recording sheet (col. 6, lines 24 to 34). Ui does not disclose or suggest matching the detected position to the sample detection patterns, and correcting image recording position for said image recording material based on the selected output ranges. For at least these additional exemplary reasons, claim 21 is patentable over Stephenson in view of Ui.

Independent claim 8 recites: “a position detecting unit for said image forming material which is arranged at positions of said at least two sides along said predetermined transporting direction, and which detects a size of said image recording material based on positions of said at least two sides along said predetermined transporting direction.” The Examiner contends that claim 8 recite features similar to claim 1 and is rejected for analogous reasons (*see* page 6 of the

Office Action). Applicant respectfully disagrees. Claim 8 recites different unique features from claim 1 and it is improper for the Examiner to group claim 8 along with claim 1.

In addition, in Stephenson, sensors 14 and 16 are only used to detect the dislocation of the receiver 12 and not the size of the receiver 12. In fact, Stephenson only discloses that the maximum positional error may vary from one printer configuration to another *e.g.*, printers for large receivers versus printers for small receivers, and that this maximum positional error may be calculated using statistics (col. 10, lines 5 to 12). Stephenson, however, does not disclose or suggest detecting the size of the receiver. Further, Stephenson does not disclose or suggesting correcting the dislocation of the receiver 12 based on the detected size.

Ui does not cure the deficient disclosure of Stephenson. Ui only discloses detecting the angle of inclination and shift of the recording sheet (col. 4, lines 47 to 55). In one embodiment, it is disclosed that it is also possible to use two sensors arranged in the lateral direction of a recording sheet conveyance path, in place of line sensor LS, for detecting transit time and inclination of recording sheet P. With regard to an inclination angle of recording sheet P in this case, it can be obtained in the same way as in CCD line sensor LS. For synchronization between conveyance of a recording sheet and image forming, the time required for leading edge corner P1 of a recording sheet to reach transfer position X needs to be obtained, and this period of time can be obtained from the time which is required for the leading edge of a recording sheet to pass and is detected by the two sensors, the inclination angle, and size information of the recording sheet (col. 6, line 62 to col. 7, line 9). However, in Ui, there is no disclosure or suggestion that the size is detected.

In summary, the combined disclosures of Stephenson and Ui do not suggest at least the above-quoted unique features of claim 8. Therefore, for all the above reasons, independent claim

8 is patentable. Claims 9, 10, 12, 13, 22, and 23 are patentable at least by virtue of their dependency on claim 8.

Independent claim 14 recites features similar to, although not necessarily coextensive with, the features argued above with respect to claim 1. Therefore, arguments presented with respect to claim 1 apply with equal force here. For at least substantially analogous exemplary reasons, therefore, independent claim 14 is patentably distinguishable from Stephenson. Claims 15, 16, 18, and 19 are patentable at least by virtue of their dependency on claim 14.

Claims 5, 11, and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Stephenson and Ui in view of U.S. Patent No. 6,385,944 to Taniguchi (hereinafter “Taniguchi”). Applicant respectfully traverses these grounds of rejection in view of the following comments.

Claims 5, 11, and 17 depend on claims 1, 8, and 14, respectively. It was already demonstrated that Stephenson and Ui fail to disclose or suggest all of the unique features of claims 1, 8, and 14. Taniguchi is only cited for its teachings of a potentiometer (*see* page 6 of the Office Action) and as such clearly fails to cure the deficient teachings of Stephenson in view of Ui. Therefore, claims 1, 8, and 14 are patentable over the combined teachings of Stephenson, Ui, and Taniguchi. Claims 5, 11, and 17 are patentable at least by virtue of their dependency on claims 1, 8, and 14, respectively.

In addition, there is no motivation to combine the references in the manner suggested by the Examiner. The Examiner alleges that “Taniguchi discloses a potentiometer with a lever for a printer” (*see* page 6 of the Office Action). Applicant respectfully disagrees.

In order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. MPEP 2141.01(a).

Taniguchi is unrelated to the printer or image recording apparatuses. Taniguchi relates to packaging coins with a packaging paper (*see* Abstract). Accordingly, Taniguchi is from a different field of endeavor. Furthermore, Taniguchi is not pertinent to the problem with which the present invention is concerned (*i.e.*, aligning the image without deforming the recording medium). One of ordinary skill in the art confronted with the problem set forth in the specification of the instant application would not have turned to a reference such as Taniguchi, which is unrelated to recording images.

For at least this additional exemplary reason, claims 5, 11, and 17 are patentable over the combined teachings of Stephenson, Ui, and Taniguchi.

IV. New Claims

In order to provide more varied protection, Applicant adds claims 24-28, which are patentable by virtue of their dependency and for additional features set forth therein.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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